

1. Calculate  $3.7 \times 16.2^2 - 500$ , writing your answer

(a) correct to two decimal places;

(b) (i) correct to three significant figures;

(ii) in the form  $a \times 10^k$ , where  $1 \leq a < 10$ ,  $k \in \mathbb{Z}$ .

*Working:*

*Answers:*

(a) .....

(b) (i) .....

(ii) .....

**(Total 4 marks)**

2. (a) A girl's height is 1.623 m. Write her height **to the nearest cm**.
- (b) The time taken to fill a tank was 2 hours 43 minutes. Write this time **to the nearest 5 minutes**.
- (c) The attendance at a show was 2591 people. How many people, **to the nearest 100**, were at the show?
- (d) The mean distance of the Moon from the Earth is approximately 384 403 km. Write this distance in the form  $a \times 10^k$  where  $1 \leq a < 10$  and  $k \in \mathbb{Z}$ .

*Working:*

*Answers:*

- (a) .....
- (b) .....
- (c) .....
- (d) .....

**(Total 4 marks)**

3. Anthony uses the formula

$$p = \frac{27q}{r + s}$$

to calculate the value of  $p$  when, correct to two decimal places,  $q = 0.89$ ,  $r = 1.87$  and  $s = 7.22$ .

- (a) He estimates the value **without using a calculator**.
- (i) Write down the numbers Anthony could use in the formula to estimate the value of  $p$ .
- (ii) Work out the estimate for the value of  $p$  that your numbers would give.

- (b) A calculator is to be used to work out the actual value of  $p$ .

To what degree of accuracy would you give your calculator answer? Give a reason for your answer.

*Working:*

*Answers:*

- (a) (i) .....  
(ii) .....  
(b) .....  
.....

**(Total 4 marks)**

4. The speed of sound in air is given as  $300 \text{ ms}^{-1}$ .
- (a) How many metres does sound travel in air in one hour?
- (b) Express your answer to part (a)
- (i) correct to **two** significant figures;
- (ii) in the form  $a \times 10^k$ , where  $1 \leq a < 10$  and  $k \in \mathbb{Z}$ .

*Working:*

*Answers:*

- (a) .....
- (b) (i) .....
- (ii) .....

**(Total 4 marks)**

1. (a) 471.03 (A1) (C1)
- (b) (i) 471 (A1) (C1)
- (ii)  $4.71 \times 10^2$  or  $4.71028 \times 10^2$  or  $4.7103 \times 10^2$  (A1)(A1)  
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2. (a) 162 cm or 1.62 m (A1)
- (b) 2 hours 45 minutes or 165 minutes (A1)
- (c) 2600 (A1)
- (d)  $3.84403 \times 10^5$  or  $3.84 \times 10^5$  (A1)  
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3. (a) (i)  $q = 1, r = 2, s = 7$  (A1)
- Note: Award (A1) for other sensible estimates of  $q, r$  and  $s$*

(ii)  $p = 3$  (A1)

*Note: Follow through from (a)(i)*

(b) Two decimal places (accept three significant figures). (A1)

Because two decimal places is given (accept reason related to chosen degree of accuracy). (A1)

*Note: Award marks for correct reason only*

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4. (a)  $300 \times 3600$  (M1)  
 $= 1080000$  (A1)

(b) (i) 1100000 (A1)

(ii)  $1.08 \times 10^6$  or  $1.1 \times 10^6$  (A1)

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